Naval Health Research Center

DISEASE AND NON-BATTLE INJURIES AMONG NAVY AND MARINE CORPS PERSONNEL DURING OPERATION DESERT SHIELD / DESERT STORM

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Summary

This study describes types and frequencies of Diseases and Non-Battle Injuries (DNBI) that occurred in a sample population of U.S. Navy and Marine Corps personnel deployed to Saudi Arabia during the Persian Gulf War. Data were collected at two U.S. Navy mobile field hospitals set up in northern Saudi Arabia during the seven months of Operation Desert Shield and Operation Desert Storm. A Medical Encounter Data Sheet (MEDS) was used to capture pertinent medical information during individual patient visits. The MEDS form is a modified version of an instrument used in earlier studies of DNBI during peacetime. Completed MEDS forms were forwarded to the Naval Health Research Center in San Diego, where they were coded and the data entered into a computer file for analysis.

Frequencies were computed for each of the major illness and injury categories defined in the International Classification of Diseases, Ninth Revision (ICD-9). The highest number of visits were for "Injuries and Poisonings" followed by "Diseases of the Respiratory System." These findings are consistent with earlier studies of DNBI among U.S. Navy and Marine Corps personnel under peacetime conditions.

The MEDS form proved useful as a means of documenting medical treatment information from deployed units. This data collection procedure, if used routinely by all deployed medical units during a conflict, could not only provide valuable information to medical planners for use during future conflicts, but could also prove useful in locating problem areas where immediate preventative health care measures would be effective.

Introduction

On August 2, 1990 Iraq invaded the independent Arab state of Kuwait. The United States participated in the allied response sending approximately 480,000 troops to the Gulf region, including 65,000 Navy and 93,000 Marine Corps personnel. Part of the troop deployment to the Gulf consisted of medical support personnel and supplies needed to provide health care and medical treatment.

Accurate determination of the medical resources required to provide medical care for troops in combat depends upon credible estimates of patient load. Although projections of casualty rates are clearly required to estimate patient load during combat, one also needs an estimate of the number of cases resulting from Disease and Non-Battle Injuries (DNBI). Previous studies have shown that DNBI can represent a significant portion of the total patient load. In a study by Hoeffler and Melton (1) on Navy and Marine Corps personnel from World War I hrough the Vietnam Conflict, consistently higher admission rates for DNBI than for battle injuries were found. Similarly, Palinkas and Coben (2) reported that during the Vietnam conflict, between 1965 and 1972, a higher number of Marine Corps personnel were hospitalized for DNBI than for combat related wounds or injuries. Further, a study of Army personnel by Reister (3) showed that the annual admission rates were higher for DNBI than for battle injuries during both World Wars I and II. This study also reported that during World War I, annual mortality rates were higher for DNBI than for battle casualties.

To provide Navy medical planners with needed DNBI information, a series of studies were conducted. Blood et al. (4), reported on the rate of illness for shore stations in various theaters of operation, including Southwest Asia, for two years 1976 and 1985. Other studies documented peacetime, (1980 through 1984) DNBI hospital admission rates for Navy (5) and Marine Corps (6) enlisted personnel in different geographic regions. Pugh (7) combined these peacetime rates with data on wartime DNBI rates to estimate DNBI hospital admission rates and sick list admission rates under low, medium, and high levels of combat intensity.

The Persian Gulf conflict provided the opportunity to gather information on the number and kinds of DNBI that would occur under combat conditions for which there were little or no data previously available. These data could be used to provide medical planners with improved patient load estimates for future conflicts. Such data would be particularly valuable because, in the past, only a limited amount of DNBI data has been gathered during combat situations. Also, because so few U.S. military personnel have been assigned to the Southwest Asia region, only a limited amount of DNBI data were previously available from that region. Finally, gathering DNBI data during this period would allow data collection methods developed and used during peacetime (8) to be tested during combat. Thus, the purpose of this study is threefold: 1) to test a previously developed data collection method in a combat environment; 2) to document DNBI during the Persian Gulf Conflict for two shore facilities; and 3) to compare numbers and types of DNBI that occured in the Persian Gulf conflict with DNBI incidences reported in earlier studies.

Methods

Patient visit data were collected at two mobile field hospitals set up in Saudi Arabia to serve primarily U.S. Navy and Marine Corps personnel during the Persian Gulf conflict. Figure 1 shows the locations of the two mobile field hospitals, Fleet Hospital Fifteen (FH-15) and Surgical Support Company Foxtrot (Foxtrot SSC) of the 1st Force Services Support Group (1st FSSG). To determine total patient load due to DNBI, all patients, including non-U.S. civilians and foreign military personnel, treated for DNBI at these field hospitals were included in this study. DNBI rates, i.e. number of cases per 1,000 troops, could not be calculated because of the constant and significant changes in the composition of the study population during the conflict. As a result, analyses were limited to the computation of frequency distributions and percentages.

Numbers and types of DNBI were gathered using the Patient Encounter Report shown in Appendix A. This form was developed for earlier studies by the Naval Health Research

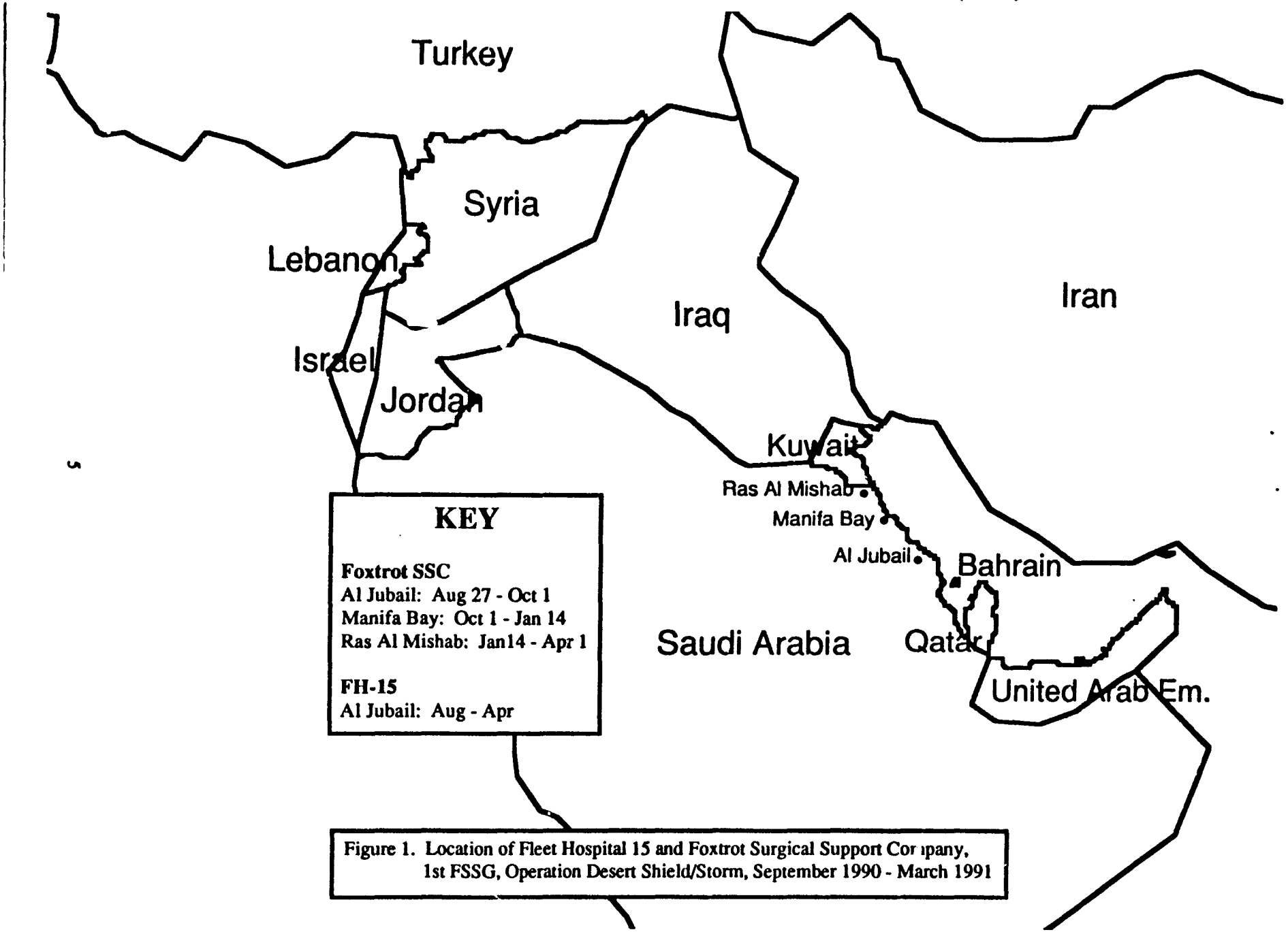

Figure 1. Location of Fleet Hospital 15 and Foxtrot Surgical Support Company, 1st FSSG, Operation Desert Shield/Storm, September 1990 - March 1991

Center (NHRC)(8) and was revised to improve its utility. The resulting Medical Encounter Data Sheet (MEDS) is shown in Appendix B. The MEDS form was used to document patients' demographic and service information, information about the type, cause, and location of the injury if the person was injured, the disease diagnosis, and subsequent disposition of the patient. It also captured the date of the visit as well as the treatment(s) that were provided to the patient.

Encounter forms, along with instructions for completion, and pre-addressed return envelopes were sent to medical representatives at the field hospitals. Additional forms were sent at regular intervals to ensure an adequate supply of encounter forms for data collection. Data collection started in September 1990 and ended March 1991.

All completed encounter forms were mailed to the Naval Health Research Center, San Diego, where they were coded and entered into a computer data file. The patient diagnoses were grouped into eighteen categories of diseases and injuries according to the International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM)(9). Frequency and percent of encounters were computed by branch of service, type of disease and injury, date of encounter, and disposition after treatment.

Results

There were 1,820 MEDS forms received from the two field hospitals during the study. Figure 2 shows the number of patients by branch of service. The majority of the patients were Navy (n=1136, percent=62.4) and Marine Corps (n=575, percent=31.6) personnel. The remainder of the patients consisted of personnel from other allied forces as well as civilians (n=47, percent=2.6).

Inspection of patient encounters by month, (Figure 3) reveals that relatively few patients were seen during the first two months of the Persian Gulf Conflict. However, there was a dramatic rise in patient visits during the month of February 1991 (n=1049, percent=57.6).

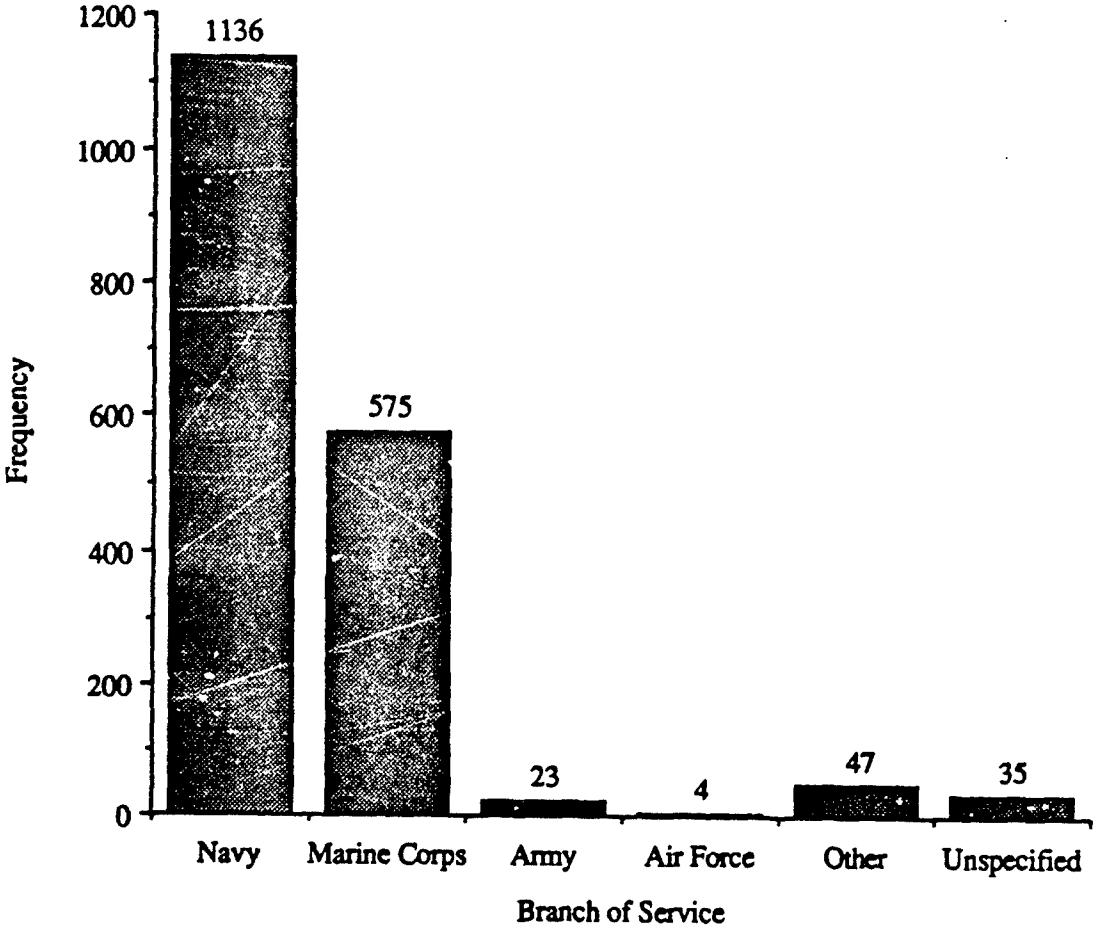

Figure 2. Number of Patients Encountered by Branch of Service, Fleet Hospital 15 and Foxtrot Surgical Support Company, September 1990 - March 1991

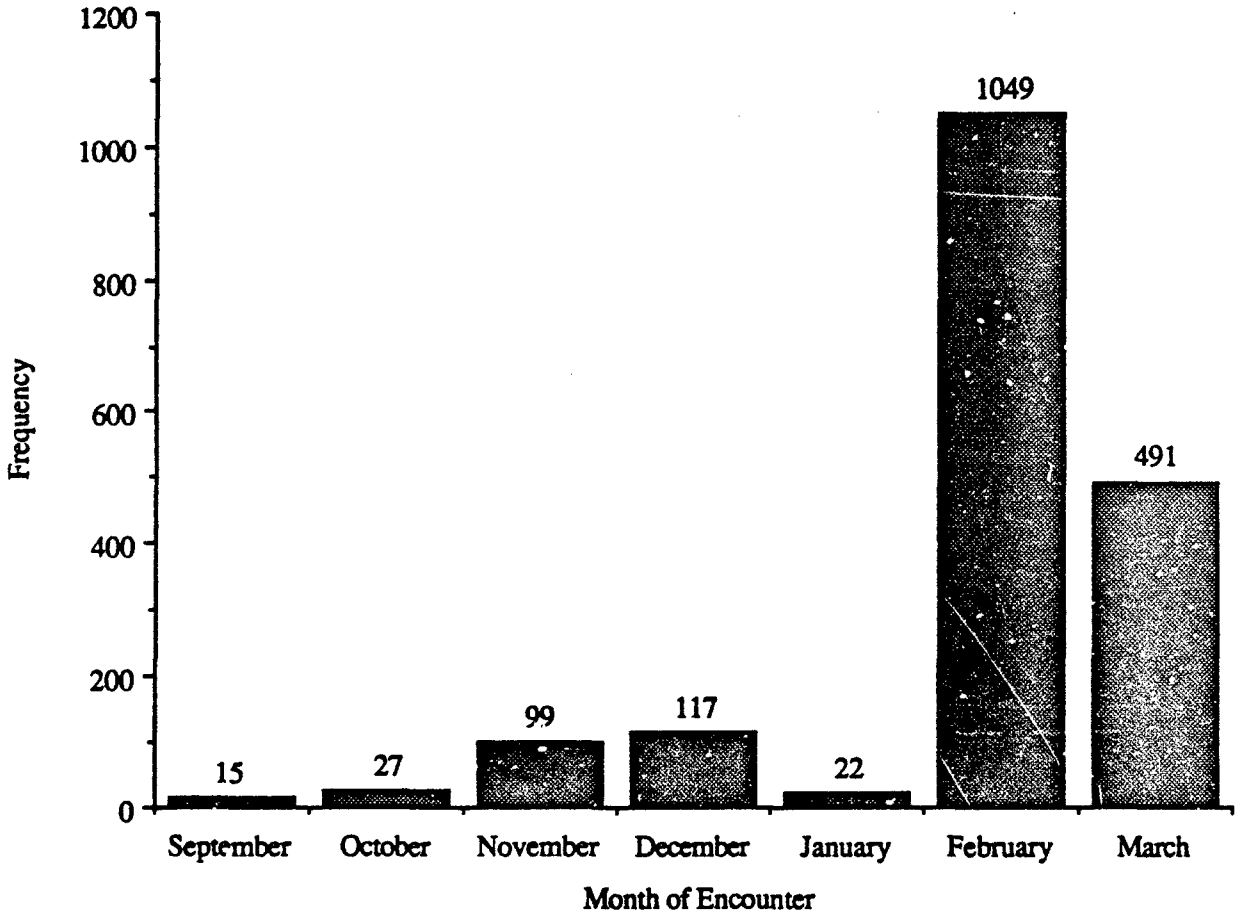

Figure 3. Number of Patients Encountered by Month, Fleet Hospital 15 and Foxtrot Surgical Support Company, September 1990 - March 1991

The number and type of injuries by branch of service is shown in Table 1. The largest number of patient encounters was for "Injury and Poisoning" (n=438, percent=24.1). "Diseases of the Respiratory System" (n=346, percent=19.0) was the second most frequently encountered illness category. There were 192 cases that could not be categorized into one of the eighteen ICD-9 diagnostic categories. Diagnostic data about these patients were either missing because the encounter form was not completed or a diagnosis did not apply to the case (e.g., a visit for a routine physical exam).

The large number of patients seen for "Diseases of the Respiratory System" consisted mostly of upper respiratory infections (n=225/346, percent=65.0). The number of cases of upper respiratory infections rose sharply as the winter climate set in to the region (Table 2).

As Figure 4 shows, the majority of the patients seen were returned to full duty (n=1,297, percent=71.3). A small number of patients (n=174, percent=9.6) had severe injuries which prevented them from returning to full duty.

Discussion

In the period prior to combat, Navy personnel were treated at field hospitals nearly twice as often as personnel from all other branches of service combined. This result probably reflects the fact that the field hospitals were primarily staffed by Navy medical personnel, while Marines and other troops were deployed in field positions. During the five months of troop buildup (Desert Shield), prior to the air and ground war (Desert Storm), the majority of the DNBI cases incurred by Marine Corps personnel were treated in the field because the degree of severity generally would not be enough to justify transportation back to the field hospital. At the same time, Navy personnel, who made up the majority of personnel at the field hospital, would have been treated for all their illnesses and injuries, regardless of severity, at the field hospital.

The number of DNBI cases increased monthly from September to December as expected due to the buildup of troops in the Persian Gulf. However, there was an unexpected

Table 1
Frequency of Patient Visits by Diagnostic Category and Branch of Service, Fleet Hospital 15
and Foxtrot Surgical Support Company, 1st FSSG, September 1990 - March 1991

ICD-9-CM Classification of Diseases and Injuries	Total(%)	Branch of Service			
		Navy (%)	Marine(%)	Other(%)	Unspec.(%)
Injury and Poisoning	438 (24.1)	213 (18.8)	192 (33.4)	26 (35.1)	7 (20.0)
Diseases of the Respiratory System	346 (19.0)	290 (25.5)	47 (8.2)	6 (8.1)	3 (8.6)
No Diagnosis	192 (10.5)	117 (10.3)	62 (10.8)	5 (6.8)	8 (22.9)
Symptoms, Signs, and Ill-Defined Conditions	188 (10.3)	133 (11.7)	40 (7.0)	7 (9.5)	8 (22.9)
Diseases of the Skin and Subcutaneous Tissue	150 (8.2)	91 (8.0)	53 (9.2)	5 (6.8)	1 (2.9)
Infectious and Parasitic Diseases	98 (5.4)	59 (5.2)	33 (5.7)	4 (5.4)	2 (5.7)
Diseases of the Musculoskeletal System	96 (5.3)	54 (4.8)	33 (5.7)	8 (10.8)	1 (2.9)
Diseases of the Nervous System and Sense Organs	94 (5.2)	58 (5.1)	30 (5.2)	5 (6.8)	1 (2.9)
Diseases of the Genitourinary System	73 (4.0)	29 (2.6)	41 (7.1)	3 (4.1)	0 (0.0)
Diseases of the Digestive System	72 (4.0)	40 (3.5)	28 (4.9)	3 (4.1)	1 (2.9)
Diseases of the Circulatory System	30 (1.6)	17 (1.5)	11 (1.9)	2 (2.7)	0 (0.0)
Supplementary Classification	16 (0.9)	13 (1.1)	3 (0.5)	0 (0.0)	0 (0.0)
Mental Disorder	12 (0.7)	10 (0.9)	1 (0.2)	0 (0.0)	1 (2.9)
Neoplasms	9 (0.5)	6 (0.5)	1 (0.2)	0 (0.0)	2 (5.7)
Endocrine, Nutritional, and Metabolic Diseases	6 (0.3)	6 (0.5)	0 (0.0)	0 (0.0)	0 (0.0)
Total	1820 (100.0)	1136 (62.4)	575 (31.6)	74 (4.1)	35 (1.9)

Table 2
Frequency of Patient Visits by Diagnostic Category and Month of Encounter, Fleet Hospital 15
and Foxtrot Surgical Support Company, 1st FSSG, September 1990 - March 1991

Diseases and Injuries Classification	Total	Month of Encounter						
		Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
Injury and Poisoning	438	5	15	43	57	10	238	70
Diseases of the Respiratory System	346	0	0	3	10	4	216	113
No Diagnosis	192	1	2	15	3	0	113	58
Symptoms, Signs, and Ill-Defined Conditions	188	1	4	8	6	0	103	66
Diseases of the Skin and Subcutaneous Tissue	150	0	1	8	7	2	97	35
Infectious and Parasitic Diseases	98	7	0	8	1	2	60	20
Diseases of the Musculoskeletal System	96	1	1	5	9	1	58	21
Diseases of the Nervous System and Sense Organs	94	0	1	1	3	0	59	30
Diseases of the Genitourinary System	73	0	2	2	7	0	39	23
Diseases of the Digestive System	72	0	1	6	9	3	26	27
Diseases of the Circulatory System	30	0	0	0	4	0	18	8
Supplementary Classification	16	0	0	0	0	0	8	8
Mental Disorder	12	0	0	0	0	0	9	3
Neoplasms	9	0	0	0	0	0	2	7
Endocrine, Nutritional, and Metabolic Diseases	6	0	0	0	1	0	3	2
Total	1820	15	27	99	117	[illegible]	1043	491

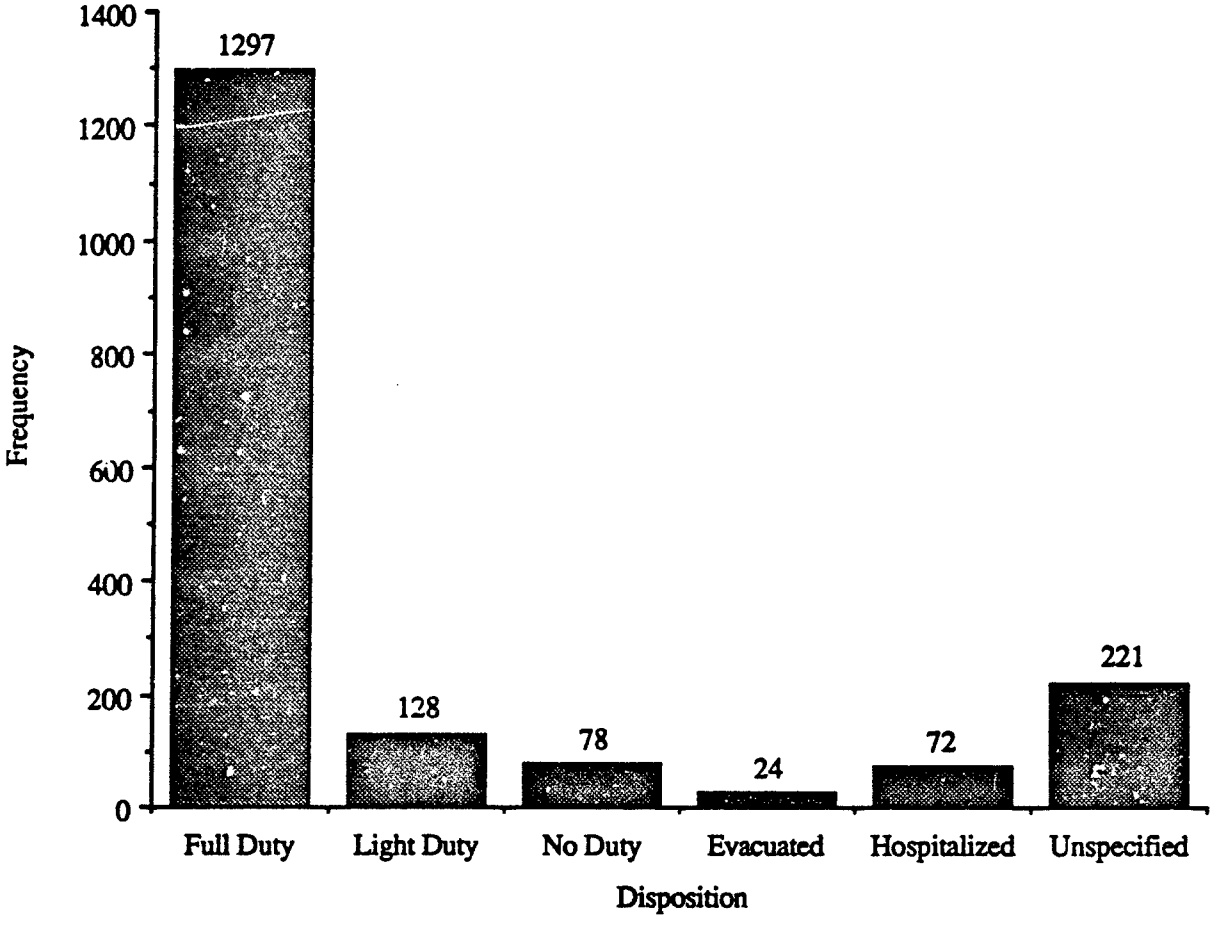

Figure 4. Number of Patients by Disposition, Fleet Hospital 15 and Foxtrot Surgical Support Company, September 1990 - March 1991

drop in January, 1991. After interviewing personnel attached to the field hospitals, it was found that both hospitals were moved to new locations closer to Kuwait during this month. This meant that they were non-operational for most of this period, thus resulting in a much lower case load. The rise in DNBI in February undoubtedly reflects the fact that the United States troop strength in the Persian Gulf reached its peak during this month. However, other factors may have contributed somewhat to this increase. The onset of cold winter weather may have had an effect (10) or the stress associated with the start of the ground offensive may also have had an effect (11).

The large number of patients in the "Injury and Poisoning" category consisted mostly of sprains and strains of joints, tendons, ligaments, and adjacent muscles (n=154/438, percent=35.2). The majority of these orthopedic injuries resulted from sporting activities (e.g. football and volleyball) and accidents due to occupational hazards (e.g. slammed tank door on hand) or field living conditions (e.g. fell in foxhole). Sporting activities that involved contact were eventually banned for field hospital personnel due to the excessively high numbers of orthopedic injuries. A large number of the patient encounters, and thus medical load and personnel down-time, probably could be prevented or reduced in the future by a greater emphasis on personal, occupational, and recreational safety among deployed Navy and Marine Corps personnel.

The distribution in the number of patients encountered among the eighteen disease and injury classifications was consistent with the findings from other studies (4,6). Diseases of the respiratory system, and injuries and poisonings are consistently found to be common problems presented at sick call.

Since the majority of the patients encountered were able to return to full duty, DNBI's did not result in a large reduction in total manpower or require additional beds. However, the large number of sick call visits for DNBI's handled at field hospitals had an impact on the medical care system in terms of time and supplies required. Therefore, the number of sick call visits need to be factored in when estimating medical resource needs.

Finally, the large number of forms that were completed demonstrates that the MEDS form is useful as a means of documenting medical treatment information from deployed units. The standardized checklist format with ICD-9 codes allowed for quick and easy capture of all pertinent information by health care providers at the time of the patient visit. This data collection procedure, if used routinely by all deployed medical units during a conflict, not only could provide valuable information to medical planners for use during future conflicts, but could be useful in locating problem areas where preventative health measures would be effective.

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Appendix A

Patient Encounter Report

№ 27570

PATIENT ENCOUNTER REPORT

I. PATIENT INFORMATION

TODAY'S DATE (MM/DD/YY): ___/___/___

NAME (LAST, FIRST, M I):

SOCIAL SECURITY NUMBER: ___-___-____

BIRTHDATE (MM/DD/YY): ___/___/___

BRANCH OF SERVICE: ☐ NAVY ☐ MARINE CORPS ☐ OTHER: _____

PAY GRADE: E-___ O-___ W-___

SEX: ☐ MALE ☐ FEMALE

ASSIGNED TO:

SHIP NAME: _____ **OR** (if SHORE COMMAND) BATTALION/SQUADRON/UNIT: _____

VISIT NUMBER FOR PRESENT PROBLEM: ☐ 1 ☐ 2 ☐ 3 ☐ 4 OR MORE

IF INJURED: ☐ ON DUTY ☐ OFF DUTY

WHERE? ☐ ASHORE ☐ ABOARD

WAS INJURY CAUSED BY: ☐ MOTOR VEHICLE ☐ BATTLE CASUALTY ☐ OTHER, BRIEFLY DESCRIBE CAUSE (more space on back of form, if needed):

II. SIGNS, SYMPTOMS, AND DIAGNOSES

RESPIRATORY:

- ☐ 450 URI
- ☐ 447 PHARYNGITIS
- ☐ 448 TONSILLITIS
- ☐ 452 INFLUENZA
- ☐ 464 BRONCHITIS
- ☐ 466 ASTHMA
- ☐ 446 SINUSITIS
- ☐ 483 OCCUPATIONAL INHALATION DISORDER
- ☐ 459 PNEUMONIA
- ☐ 474 RHINITIS
- ☐ OTHER SPECIFY: _____

GASTROINTESTINAL:

- ☐ 512 ACUTE GASTROENTERITIS/COLITIS
- ☐ 498 ULCER
- ☐ 010 DIARRHEA
- ☐ 52008 CONSTIPATION
- ☐ 505 APPENDICITIS
- ☐ 005 ACUTE BACILLARY DYSENTERY
- ☐ OTHER SPECIFY: _____

MUSCULOSKELETAL:

- ☐ 665 TENDONITIS
- ☐ 658 JOINT DERANGEMENT
- ☐ 659 INTERVERTEBRAL DISC DISORDER
- ☐ OTHER SPECIFY: _____

BEHAVIORAL:

- ☐ 27401 ANXIETY
- ☐ 287 SITUATIONAL DISTURBANCE
- ☐ 280 DRUG ABUSE
- ☐ 278 ALCOHOL ABUSE
- ☐ 27407 DEPRESSION
- ☐ OTHER SPECIFY: _____

EYE/EAR:

- ☐ 357 OTITIS EXTERNA
- ☐ 358 OTITIS MEDIA
- ☐ 337 CONJUNCTIVITIS
- ☐ OTHER SPECIFY: _____

SKIN:

- ☐ 094 FUNGAL INFECTION (TINEA)
- ☐ 615 PYODERMA/BOIL/ABSCESS/CARBUNCLE
- ☐ 640 ACNE
- ☐ 623 DERMATITIS/RASH
- ☐ 115 SCABIES
- ☐ 618 CELLULITIS
- ☐ 638 FOLLICULITIS
- ☐ 114 PEDICULOSIS
- ☐ 621 CYST
- ☐ 06902 WART
- ☐ 62608 HEAT RASH
- ☐ 63701 INGROWN TOENAIL
- ☐ OTHER SPECIFY: _____

VD/GU

- ☐ 087 GONORRHEA
- ☐ 538 NON-SPECIFIC URETHRITIS
- ☐ 04716 GENITAL HERPES VIRUS
- ☐ 086 SYPHILIS
- ☐ 08801 CHANCROID
- ☐ OTHER SPECIFY: _____

OTHER MEDICAL PROBLEMS:

- ☐ 012 ACTIVE CLINICAL TUBERCULOSIS
- ☐ 73710 FEVER OF UNDETERMINED ORIGIN
- ☐ 30505 GENERAL MALAISE/FATIGUE
- ☐ 739 HEADACHE
- ☐ 440 HEMORRHOIDS
- ☐ 507 HERNIA
- ☐ 047 HERPES SIMPLEX VIRUS
- ☐ 382 HYPERTENSION
- ☐ 917 IMMUNOLOGICAL REACTION
- ☐ 94209 MOTION SICKNESS
- ☐ 249 OVERWEIGHT
- ☐ DENTAL SPECIFY: _____
- ☐ OTHER SPECIFY UNLISTED CONDITION: _____

ACCIDENTS/TRAUMA:

Show TYPE OF INJURY and INJURY LOCATION by filling the space to the left with the appropriate LETTER CODE from Location Letter Code list.

CODE	TYPE OF INJURY
___ 11	ABRASION
___ 12	BRUISE
___ 13	BURN (CHEMICAL)
___ 14	BURN (HEAT)
___ 15	FOREIGN BODY
___ 16	FRACTURE
___ 17	HEAT EXHAUSTION
___ 18	HEAT STROKE
___ 19	LACERATION
___ 20	POISONING
___ 21	PUNCTURE WOUND
___ 22	SPRAIN/STRAIN

LOCATION LETTER CODES

A SCALP	N HAND
B FACE	O FINGER
C EYE	P BACK
D EAR	Q ABDOMEN
E MOUTH	R HIP/BUTTOCK
F NECK	S GROIN/GENITAL
G CHEST	T UPPER LEG
H RIBS	U KNEE
I SHOULDER	V SHIN/CALF
J UPPER ARM	W ANKLE
K ELBOW	X FOOT
L FOREARM	Y TOE
M WRIST	Z DOES NOT APPLY

☐ OTHER SPECIFY: _____

III. DISPOSITION

- ☐ 1 FULL DUTY
- ☐ 2 LIGHT DUTY (# days: _____)
- ☐ 3 NO DUTY (# days: _____)
- ☐ 4 EVACUATED
- ☐ 5 HOSPITALIZED

PLEASE TURN PAGE - MORE ON OTHER SIDE

IV. TREATMENT PROVIDED

- ☐ 01 NO TREATMENT PROVIDED
- ☐ 02 EARPLUGS
- ☐ 03 PHYSICAL/EYE/HEARING EXAM
- ☐ 04 SURGERY/SUTURE PROCEDURES
- ☐ 05 DRESSING
- ☐ 06 EYEGLASSES
- ☐ 07 PRESCRIPTION(S) (#: _____)
- ☐ 08 X-RAY(S) (#: _____)
- ☐ 09 REFERRAL
- ☐ 10 COUNSELING

V. PATIENT STATUS (CHECK ONLY ONE)

OUTPATIENT: ☐ 1 ACTIVE DUTY ☐ 2 DEPENDENT ☐ 3 OTHER, SPECIFY: _____

INPATIENT: ☐ 4 ACTIVE DUTY ☐ 5 DEPENDENT ☐ 6 OTHER, SPECIFY: _____

VI. SERVICES (CHECK ANY THAT APPLY)

- ☐ 01 LAB TEST(S) (#: _____)
- ☐ 02 PFT
- ☐ 03 AUDIOGRAM
- ☐ 04 COBALT/CESIUM
- ☐ 05 ECG
- ☐ 06 RADIOISOTOPE STUDY
- ☐ 07 OTHER DEEP THERAPY
- ☐ 08 REFRACTION MC
- ☐ 09 REFRACTION MSC
- ☐ 10 ORDER SPECTACLES (SINGLE)
- ☐ 11 ORDER SPECTACLES (BIFOCAL)
- ☐ 12 FABRICATE SINGLE VISION
- ☐ 13 PHARMACY UNIT(S) (#: _____)
- ☐ 14 X-RAY (# exposures: _____)
- ☐ 15 DIALYSIS
- ☐ 16 EEG
- ☐ 17 FLUOROSCOPIC EXAM
- ☐ 18 RADIUM/RADIOISOTOPE THERAPY
- ☐ 19 FLIGHT PHYSICAL EXAM
- ☐ 20 OTHER COMPREHENSIVE PHYS EXAM
- ☐ 21 IMMUNIZATION(S) (#: _____)
- ☐ 22 LIMITED SERVICE
- ☐ 23 FETAL DEATH
- ☐ 24 FAMILY PLANNING/CONTRACEPTION
- ☐ 25 VASECTOMY
- ☐ 26 OTHER, SPECIFY: _____

VII. IF THIS IS A SPECIALIZED CLINIC, CHECK TYPE OF CLINIC AND VISIT TYPE.

- ☐ 01 ALLERGY
- ☐ 02 ANESTHESIOLOGY
- ☐ 03 CARDIOLOGY
- ☐ 04 CHEST DISEASE
- ☐ 05 DERMATOLOGY
- ☐ 06 EMERGENCY ROOM
- ☐ 07 ENDOCRINOLOGY
- ☐ 08 FAMILY PRACTICE
- ☐ 09 GASTROENTEROLOGY
- ☐ 10 GENERAL INTERNAL MEDICINE
- ☐ 11 GENERAL PRACTICE
- ☐ 12 GENERAL SURGERY
- ☐ 13 GYNECOLOGY
- ☐ 14 HEMATOLOGY
- ☐ 15 NEUROLOGY
- ☐ 16 NEUROSURGERY
- ☐ 17 OBSTETRICS
- ☐ 18 OCC THERAPY
- ☐ 19 OPHTHALMOLOGY
- ☐ 20 OPTOMETRY
- ☐ 21 ORTHOPEDICS
- ☐ 22 OTORHINOLARYNGOLOGY
- ☐ 23 PEDIATRICS
- ☐ 24 PHYSICAL THERAPY
- ☐ 25 PLASTIC SURGERY
- ☐ 26 PODIATRY
- ☐ 27 PROCTOLOGY
- ☐ 28 PSYCHIATRY
- ☐ 29 PSYCHOLOGY
- ☐ 30 THORACIC SURGERY
- ☐ 31 UROLOGY

VISIT TYPE:

☐ 1 LIMITED SERVICE ☐ 2 OUTPATIENT ☐ 3 INPATIENT

VIII. TUBERCULIN TESTING (CHECK ANY THAT APPLY)

- ☐ 1 REACTIVE SKIN TEST
- ☐ 2 CONVERTER
- ☐ 3 NONREACTIVE SKIN TEST
- ☐ 4 X-RAY SCREEN
- ☐ 5 X-RAY SCREEN ABNORMAL
- ☐ 6 PLACED ON INH
- ☐ 7 REACTION TO INH

USE THIS SPACE FOR ANY ADDITIONAL INFORMATION/COMMENT/REMARKS:

Appendix B

Medical Encounter Data Sheet (MEDS)

MEDICAL ENCOUNTER DATA SHEET (MEDS)

I. PATIENT INFORMATION

TODAY'S DATE: (YY/MM/DD)	NAME (LAST, FIRST, MI)	SSN:	SEX: ☐MALE ☐FEMALE
__/__/__		___-__-____	

DATE OF BIRTH: (YY/MM/DD)	BRANCH OF SERVICE: ☐NAVY ☐MARINE CORPS ☐ARMY ☐AIR FORCE ☐OTHER _____	PAY GRADE: E-___ W-___ O-___	RATE/CORPS: _____ MOS/NEC: _____
__/__/__			

UNIT ASSIGNED TO (BATTALION /SQUADRON/UNIT/SHIP):

REASON FOR VISIT:
☐ DNBI ☐ WIA ☐ OTHER, BRIEFLY DESCRIBE CAUSE

II. SIGNS, SYMPTOMS, AND DIAGNOSES - DNBI ☐ ECHELON I/II, UNIT _____ ☐ ECHELON III, UNIT _____

VISIT NUMBER FOR PRESENT PROBLEM: ☐1 ☐2 ☐3 ☐4 OR MORE
IF INJURED: ☐ ON DUTY ☐ OFF DUTY
WHERE? ☐ ASHORE ☐ ABOARD

RESPIRATORY:
- ☐ 46590 URI
- ☐ 46200 PHARYNGITIS
- ☐ 46300 TONSILLITIS
- ☐ 48700 INFLUENZA
- ☐ 49000 BRONCHITIS
- ☐ 49390 ASTHMA
- ☐ 46100 SINUSITIS
- ☐ 50300 OCCUPATIONAL INHALATION DISORDER
- ☐ 48600 PNEUMONIA
- ☐ 47790 RHINITIS
- ☐ OTHER, SPECIFY: _____

GASTROINTESTINAL:
- ☐ 55890 ACUTE GASTROENTERITIS/COLITIS
- ☐ 53190 ULCER
- ☐ 00930 DIARRHEA
- ☐ 56400 CONSTIPATION
- ☐ 54100 APPENDICITIS
- ☐ 00400 ACUTE BACILLARY DYSENTERY
- ☐ OTHER, SPECIFY _____

MUSCULOSKELETAL:
- ☐ 72700 TENDONITIS
- ☐ 71800 JOINT DERANGEMENT
- ☐ 72200 INTERVERTEBRAL DISC DISORDER
- ☐ OTHER, SPECIFY: _____

BEHAVIORAL:
- ☐ 30000 ANXIETY
- ☐ 30800 SITUATIONAL DISTURBANCE
- ☐ 30400 DRUG ABUSE
- ☐ 30300 ALCOHOL ABUSE
- ☐ 30040 DEPRESSION
- ☐ OTHER, SPECIFY: _____

EYE/EAR:
- ☐ 38010 OTITIS EXTERNA
- ☐ 38100 OTITIS MEDIA
- ☐ 37200 CONJUNCTIVITIS
- ☐ OTHER, SPECIFY: _____

SKIN:
- ☐ 11040 FUNGAL INFECTION (TINEA)
- ☐ 68000 PYODERMA/BOIL/ABSCESS/CARBUNCLE
- ☐ 69000 DERMATITIS/RASH
- ☐ 13300 SCABIES
- ☐ 68200 CELLULITIS
- ☐ 70480 FOLLICULITIS
- ☐ 13200 PEDICULOSIS
- ☐ 07810 WART
- ☐ 69270 HEAT RASH
- ☐ 70300 INGROWN TOENAIL
- ☐ OTHER, SPECIFY: _____

STD:
- ☐ 09600 GONORRHEA
- ☐ 59780 NON-SPECIFIC URETHRITIS
- ☐ 05410 GENITAL HERPES VIRUS
- ☐ 09100 SYPHILIS
- ☐ 09900 CHANCROID
- ☐ OTHER, SPECIFY _____

OTHER MEDICAL PROBLEMS:
- ☐ 01100 ACTIVE CLINICAL TUBERCULOSIS
- ☐ 78060 FEVER OF UNDETERMINED ORGIN
- ☐ 78070 GENERAL MALAISE/FATIGUE
- ☐ 78400 HEADACHE
- ☐ 45530 HEMORRHOIDS
- ☐ 55200 HERNIA
- ☐ 05400 HERPES SIMPLEX VIRUS
- ☐ 40190 HYPERTENSION
- ☐ 99520 IMMUNOLOGICAL REACTION
- ☐ 99460 MOTION SICKNESS

- ☐ DENTAL, SPECIFY: _____
- ☐ OTHER, SPECIFY: _____

ACCIDENTS/TRAUMA: Show TYPE OF INJURY and LOCATION by filling the space to the left with the appropriate letter from the LOCATION LETTER CODES

CODE	TYPE OF INJURY	LOCATION LETTER CODES	
___ 11	ABRASION	A SCALP	N HAND
___ 12	BRUISE	B FACE	O FINGER
___ 13	BURN (CHEMICAL)	C EYE	P BACK
___ 14	BURN (HEAT)	D EAR	Q ABDOMEN
___ 15	FOREIGN BODY	E MOUTH	R HIP/BUTTOCK
___ 16	FRACTURE	F NECK	S GROIN/GENITAL
___ 17	HEAT EXHAUSTION	G CHEST	T UPPER LEG
___ 18	HEAT STROKE	H RIBS	U KNEE
___ 19	LACERATION	I SHOULDER	V SHIN/CALF
___ 20	POISONING	J UPPER ARM	W ANKLE
___ 21	PUNCTURE WOUND	K ELBOW	X FOOT
___ 22	SPRAIN/STRAIN	L FOREARM	Y TOE
		M WRIST	Z DOES NOT APPLY

OTHER, SPECIFY: _____

III. DISPOSITION
- ☐ 1 FULL DUTY
- ☐ 2 LIGHT DUTY (# Days ____)
- ☐ 3 NO DUTY (# Days ____)
- ☐ 4 EVACUATED
- ☐ 5 HOSPITALIZED

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- USE THIS SIDE FOR BATTLE CASUALTIES ONLY -

IV. CASUALTY PROFILE ECHELON I/II ☐ WIA ☐ COMBAT STRESS TREA. MENT FACILITY _____ DATE: (YY/MM/DD) __ __/ __ __/ __ __

TRAUMA: Show TYPE OF WOUND and LOCATION by filling the space to the left with the appropriate letter from the LOCATION CODES.

TYPE OF WOUND	LOCATION CODE	
___ PUNCTURE	A SCALP	N HAND
___ LACERATION	B FACE	O FINGER
___ BLUNT TRAUMA	C EYE	P BACK
___ FRACTURE	D EAR	Q SPINE
___ AMPUTATION	E MOUTH	R HIP/BUTTOCK
___ BLAST	F NECK	S ABDOMEN
___ BURN (HEAT)*	G CHEST	T BOWEL
___ BURN (CHEMICAL)*	H RIBS	U GROIN/GENITAL
	I SHOULDER	V UPPER LEG
	J UPPER ARM	W KNEE
	K ELBOW	X SHIN/CALF
	L FOREARM	Y ANKLE
	M WRIST	Z FOOT
		ZZ TOE
		ZZZ HEAD/SKULL

OTHER, SPECIFY: _____

* IF BURN, SPECIFY: ☐ 1st DEGREE ☐ 2nd ☐ 3rd

FIELD TREATMENT: ☐ AIRWAY MANAGEMENT, SPECIFY _____

☐ BANDAGE
☐ COMPRESSION DRESSING
☐ TOURNIQUET: TIME INITIATED _____
☐ SPLINT
☐ LIGATION
☐ CLAMP(S)

CAUSE OF WOUND: (Check all that apply)

☐ GUNSHOT ☐ MINE ☐ TORPEDO
☐ ARTILLERY ☐ JUMP RELATED ☐ DEPTH CHARGE
☐ GRENADE ☐ CHEMICAL ☐ MORTAR
☐ BOOBY TRAP ☐ BOMB ☐ UNKNOWN
☐ FLAME/FIRE ☐ MISSILE
☐ OTHER, SPECIFY: _____

INITIAL BP _____ PULSE _____ RESP. _____

LEVEL OF CONSCIOUSNESS AT TRIAGE: TIME _____

☐ ALERT ☐ VERBAL RESPONSE
☐ PAIN RESPONSE ☐ UNRESPONSIVE

MEDICATION

☐ MORPHINE - DOSE/TIME ____/____
☐ ATROPINE - DOSE/TIME ____/____
☐ 2-PANCHLORIDE - DOSE/TIME ____/____
☐ _____ - DOSE/TIME ____/____
☐ _____ - DOSE/TIME ____/____

AIRWAY STATUS:

☐ SPONTANEOUS BREATHING ☐ SUPPLEMENTAL OXYGEN ☐ INTUBATED ☐ ASSISTED VENTILATION

V. DISPOSITION ECHELON I/II ☐ RETURNED TO DUTY (RTD) ☐ EVACUATED, WHERE _____ ☐ EXPIRED

VI. CASUALTY PROFILE ECHELON III ☐ WIA ☐ COMBAT STRESS TREATMENT FACILITY _____ DATE: (YY/MM/DD) __ __/ __ __/ __ __

DESCRIPTION OF INJURY:

☐ HEAD PENETRATING
☐ HEAD NON-PENETRATING
☐ EYE
☐ FACE/ENT
☐ FACE/ORALMAXILLOFACIAL
☐ NECK
☐ CAROTID ARTERY
☐ JUGULAR VEIN
☐ TRACHEA/LARYNX
☐ ESOPHAGUS
☐ ARM
☐ THORAX PENETRATING
☐ THORAX NON-PENETRATING
☐ DIAPHRAGM
☐ BACK W SPLEEN
☐ BACK W/O SPLEEN
☐ ABDOMEN PENETRATING
☐ ABDOMEN NON-PENETRATING
☐ SMALL INTESTINE
☐ DUODENUM
☐ COLON
☐ RECTUM
☐ LIVER
☐ PANCREAS
☐ SPLEEN
☐ KIDNEY
☐ BLADDER
☐ GROIN
☐ GENITAL
☐ REPRODUCT.
☐ LEG

☐ BURN - SPECIFY %BSA FOR EACH
1ST DEGREE____ 2ND DEGREE____ 3RD DEGREE____

INITIAL BP:_____ PULSE:_____ RESP.:_____
TIME:_____ HEMATOCRIT:_____

ABC PROCEDURES:

☐ TRACHEOSTOMY
☐ CRICOTHYROIDOTOMY
☐ I.V. FLUIDS
☐ BLOOD (#UNITS ___)
☐ BLOOD COMP. (#UNITS___)
☐ CPR
☐ DEFIBRILATED
☐ DEBRIDEMENT
☐ INTUBATED
☐ VENTILATION (ASSISTED)

SURGERY: Show PROCEDURE and LOCATION by filling the space to the left with the appropriate letter from the LOCATION CODE.

___ CLOSURE	A SCALP	J UPPER ARM	S ABDOMEN
___ DEBRIDEMENT	B FACE	K ELBOW	T BOWEL
___ AMPUTATION	C EYE	L FOREARM	U GROIN/GENITAL
___ RESECTION	D EAR	M WRIST	V UPPER LEG
___ FIXATION	E MOUTH	N HAND	W KNEE
___ GRAFT	F NECK	O FINGER	X SHIN/CALF
___ LOBECTOMY	G CHEST	P BACK	Y ANKLE
___ DRAIN	H RIBS	Q SPINE	Z FOOT
___ OPEN	I SHOULDER	R HIP/BUTTOCKS	ZZ TOE ZZZ HEAD/SKULL

___ OTHER, SPECIFY_____

UNITS OF BLOOD DURING SURGERY:_____

___ BURN - SPECIFY %BSA FOR EACH
1ST DEGREE ____ 2ND DEGREE ____ 3RD DEGREE ____

MEDICATIONS:

ANTIBIOTICS
Type _____ Amount _____
Type _____ Amount _____

OTHER
Type _____ Amount _____

OTHER
Type _____ Amount _____

FINAL BP:_____ PULSE:_____ RESP.:_____
TIME:_____ HEMATOCRIT:_____

VII.
DISPOSITION ECHELON III: ☐ RETURNED TO DUTY (RTD)

☐ HOSPITALIZED AT SITE: FINAL DISPOSITION & DATE _____

EVACUATED: ☐ IN COUNTRY, WHERE_____ ☐ HOSPITALSHIP ☐ CONUS ☐ OTHER _____
ASMRO CAT# _____ ICD9: ____ ____ ____

EXPIRED: ☐ KIA ☐ DOW ☐ CARDED FOR RECORD ONLY (CRO)

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13. ABSTRACT *(Maximum 200 words)*

THIS STUDY DESCRIBES TYPES AND FREQUENCIES OF DISEASES AND NON-BATTLE INJURIES (DNBI) WHICH HAVE OCCURED IN A SAMPLE POPULATION OF U.S. NAVY AND MARINE CORPS PERSONNEL DEPLOYED TO SAUDI ARABIA DURING THE PERSIAN GULF WAR. A MEDICAL ENCOUNTER DATA SHEET (MEDS) WAS USED TO RECORD PERTINENT MEDICAL INFORMATION DURING INDIVIDUAL PATIENT VISITS. THE HIGHEST NUMBER OF VISITS WERE FOR "INJURIES AND POISONINGS" FOLLOWED BY "DISEASES OF THE RESPITORY SYSTEM." THESE FINDINGS ARE CONSISTENT WITH EARLIER STUDIES OF DNBI AMONG U.S. NAVY AND MARINE CORPS PERSONNEL UNDER PEACETIME CONDITIONS. USING THE MEDS FORM NOT ONLY PROVIDES VALUABLE INFORMATION TO MEDICAL PLANNERS FOR USE DURING FUTURE CONFLICTS, BUT WOULD ALSO PROVE USEFUL IN LOCATING PROBLEM AREAS WHERE IMMEDIATE PREVENTATIVE HEALTH CARE MEASURES WOULD BE EFFECTIVE.

14. SUBJECT TERMS
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OPERATION DESERT STORM
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